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# Water Supply Outlook For Arizona



SOIL CONSERVATION SERVICE  
U.S. DEPARTMENT OF AGRICULTURE

Cooperating with

SALT RIVER VALLEY WATER USERS ASSOCIATION  
and ARIZONA WATER COMMISSION

AS OF  
**MAR. 1, 1980**

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

*COVER PHOTO: THE SNOWTEL PROJECT CENTRAL COMPUTER FACILITIES IN PORTLAND, OREGON. THE TERMINAL, PRINTER, COMPUTER AND TAPE DRIVES HAVE NOT COMPLETELY REPLACED THE SNOW SAMPLING TUBES SEEN IN THE FOREGROUND.*

## PUBLISHED BY SOIL CONSERVATION SERVICE

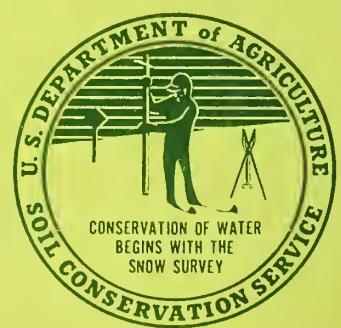
The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



# **WATER SUPPLY OUTLOOK FOR ARIZONA**

and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**

*Issued by*

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USERS ASSOCIATION

*Report prepared by*

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ROOM 3008 FEDERAL BUILDING  
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*The deepest snow (14') and greatest water content (63') ever measured in Arizona occurred last year at this Mt. Ord Snow Course.*

**ARIZONA SUMMARY**  
as of  
**MARCH 1, 1980**

THE ARIZONA SURFACE WATER SUPPLY OUTLOOK IS VERY GOOD AS FAR AS VOLUME IS CONCERNED. THE MAJOR CONCERN AT THIS TIME IS HOW TO MANAGE RESERVOIR RELEASES AND DIVERSIONS TO HANDLE THE ANTICIPATED STREAMFLOW.

## WATER SUPPLY

Arizona can expect above normal surface water supplies in the coming year. Streamflow forecasts are for much above average discharges on major streams. Runoff for the March-May period is expected to be about 950,000 acre-feet on the Salt River System, 224% of average. This is 217% on the Salt, 229% on the Verde, and 261% on Tonto Creek. The Upper Little Colorado River is forecast to produce 344% of average runoff; the San Francisco, 296%; and the Gila, 272%. Reservoir storage is above average with some reservoirs at or near capacity. All users with access to reservoir storage should have sufficient water for normal operations.

## SNOW COVER

The March 1 snowpack is much above average, with 219% on the Salt River Watershed, 261% on the Verde, 187% on the Gila, and 200% on the Upper Little Colorado.

The average densities on many courses are near 40%. The snow is ripening rapidly, a result of exposure to rain and warm temperatures in the last part of February. The pack itself has not shown evidence of losing much water through melt except at elevations below 7000 feet. Water from the snow zone which contributed to streamflow was primarily rain which passed through the snowpack.

## PRECIPITATION

Precipitation was fairly light during the first part of February, but a series of storms from February 13 to 23 produced heavy precipitation often of high intensity. During this later period many stations received up to ten inches of precipitation and monthly totals of 12 to 15 inches were recorded. Precipitation was primarily rain up to 10,000 feet elevation until February 20 when the freezing level lowered to below 7000 feet, producing a rapid accumulation of new snow until the storm system ended on the 23rd.

## STREAMFLOW

Streamflow was extremely high during and immediately after the mid to late February storm system. Flooding remained a problem on the Agua Fria and Salt River System with localized flooding reported on the Gila and Little Colorado. The Salt River, Verde River, and Tonto Creek produced a combined discharge of nearly 1,500,000 acre-feet during February. The only February on record with a greater runoff for these streams was in 1891 when 2,050,000 acre-feet was measured. Only three other individual months have been recorded with flows near 1,500,000 acre-feet and these were March 1905, January 1916, and March 1978. The Gila River at Solomon had a February flow of about 220,000 acre-feet.

## RESERVOIR STORAGE

Major water supply reservoirs have storage which is above average and near capacity. Six Salt River Project reservoirs have a combined storage of 1,697,700 acre-feet, 82% of capacity. San Carlos and Lake Pleasant are full. These eight reservoirs have a combined current storage of 2,941,000 acre-feet. Lower Colorado River reservoirs report a storage of 46,778,000 acre-feet, or 87% of capacity.

ABOUT MARCH 1,  
STREAMFLOW FORECASTS 1980

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST Thousand Acre Feet	Percent of Average	FORECAST PERIOD	THOUSAND ACRE FEET Last Year
<u>SALT RIVER DRAINAGE</u>				
Salt near Roosevelt	550	217	Mar-May	872.6
"	175	207	March	310.2
Tonto Creek near Roosevelt	75	261	Mar-May	131.9
"	50	316	March	94.1
Verde River above Horseshoe	325	229	Mar-May	367.1
"	175	296	March	232.9
Total Salt River Project Streams	950	224	Mar-May	1371.6
"	400	251	March	637.2
<u>GILA RIVER DRAINAGE</u>				
Gila River at Calva	200	303	Mar-May	277.2
Gila River near Gila	105	260	Mar-May	86.8
Gila River near Solomon	268	282	Mar-May	297.4
"	138	315	March	137.6
Gila River near Virden	120	246	Mar-May	112.8
Frisco River at Clifton 2/	150	306	Mar-May	144.7
Frisco River at Glenwood 2/	70	287	Mar-May	79.9
<u>LITTLE COLORADO RIVER DRAINAGE</u>				
Little Colo. River above Lyman Dam	45	433	Mar-June	49.6
Greer 1/	18	254	Mar-June	16.8
<u>GRANITE CREEK DRAINAGE</u>				
Granite Creek	7.0	---	Mar-May	---
Willow Creek	4.5	---	Mar-May	---
<u>MIMBRES RIVER DRAINAGE</u>				
Mimbres River near Mimbres	4.5	150	Mar-May	---
<u>COLORADO RIVER DRAINAGE</u>				
Virgin River near Littlefield 2/	160	262	Apr-June	194
Lake Mary Inflow			Mar-May	14.0
Colorado Inflow to Lake Powell	20	465	Apr-July	4.3
1/ Includes Filler Ditch Diversion				
+ Based on 15-year period, 1963-77				
* Average for less than 15 years				
2/ Frisco & Virgin River forecasts prepared by the National Weather Service Forecasts reflect the joint efforts of the National Weather Service, Salt River Project, and the Soil Conservation Service.				

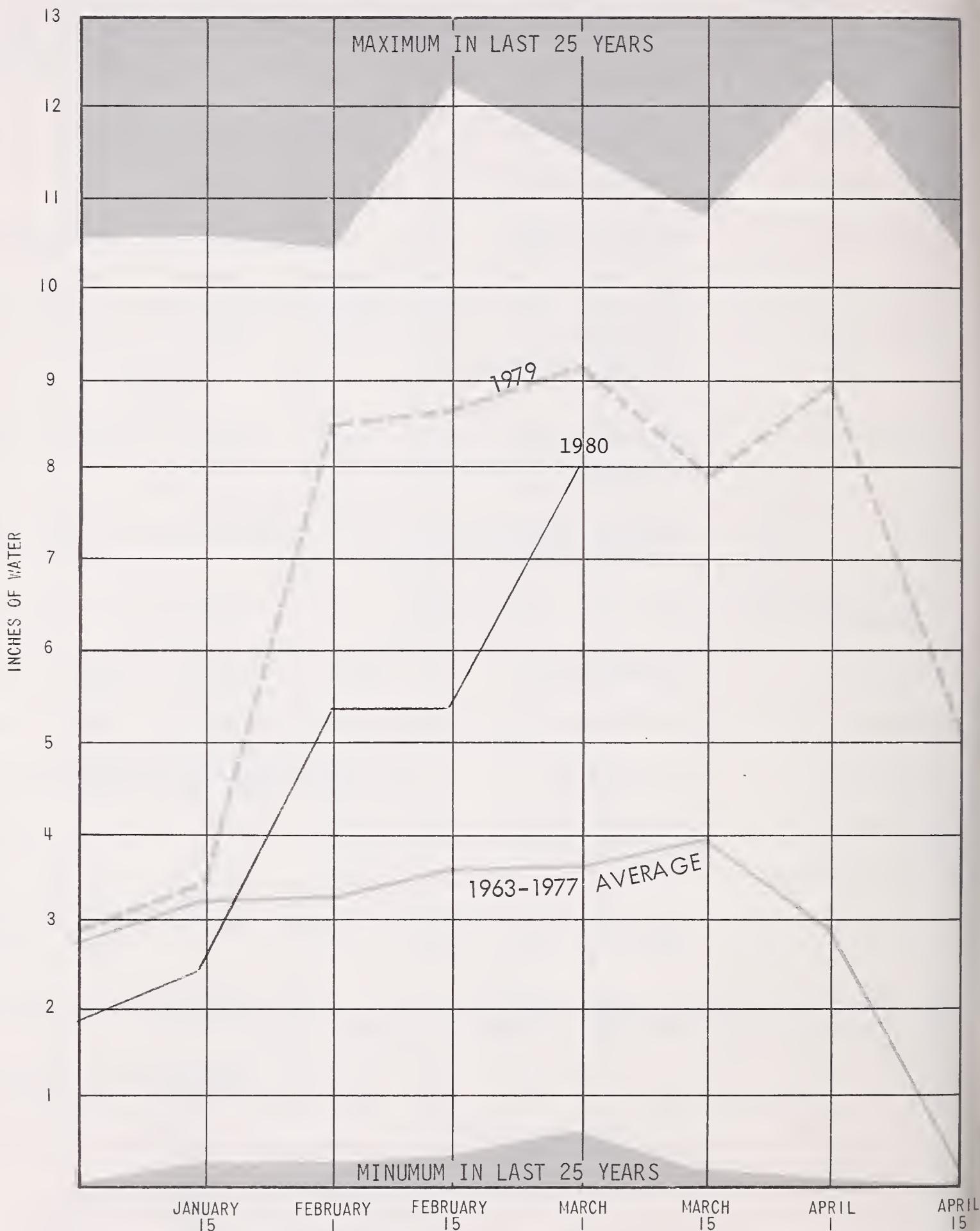
## RESERVOIR STORAGE (Thousand Acre Feet) MARCH 1, 1980

BASIN or STREAM	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average <sup>†</sup>
<u>GILA RIVER DRAINAGE</u>					
Agua Fria	Lake Pleasant	157.6	155.7	157.6	75.5
Granite	Watson Lake	4.7	4.6	4.6	3.0
Granite	Willow Creek	6.1	6.1	6.1	2.9*
Gila	San Carlos	1,073	1,089	975	252
Salt (4)	Roosevelt, Apache, Canyon & Saguaro	1,755	1,485	1,624	1,227
Verde (2)	Bartlett and Horseshoe	309.6	212.7	258.9	140.3
Salt and Verde	6 Salt River Project Reservoirs	2,065	1,697.7	1,883	1,367
<u>COLORADO RIVER DRAINAGE</u>					
Colorado	Lake Havasu	619.4	497.8	528.1	541.4
Colorado	Lake Mohave	1,810	1,681	1,657	1,673
Colorado	Lake Mead	26,159	23,520	23,297	17,526
Colorado	Lake Powell	25,002	21,080	15,126	10,064
Little Colorado	Lyman	30.6	26.0	11.6	15.6
Little Colorado	Show Low Lake	5.1	5.1	5.1	1.8

<sup>†</sup> Based on 15-year average, 1963-77.

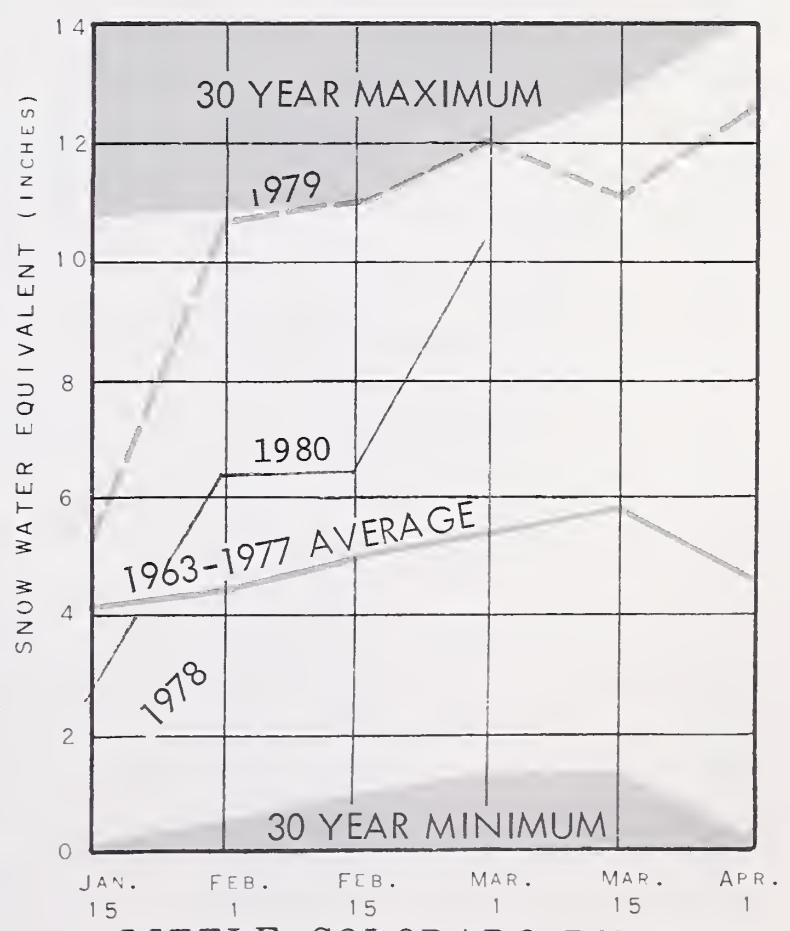
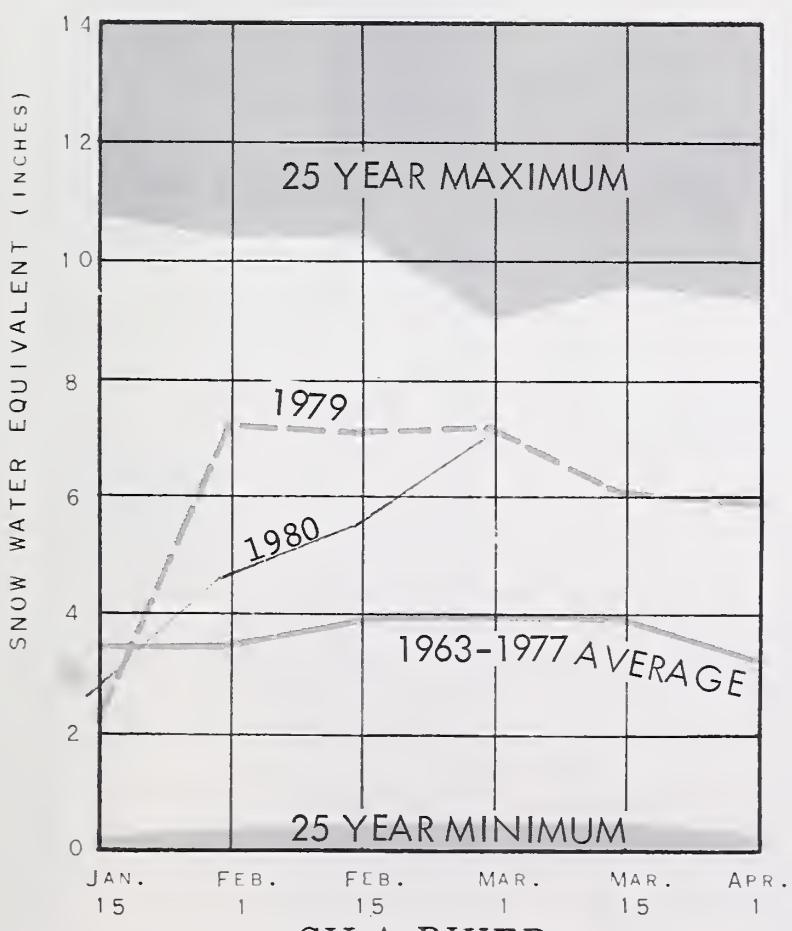
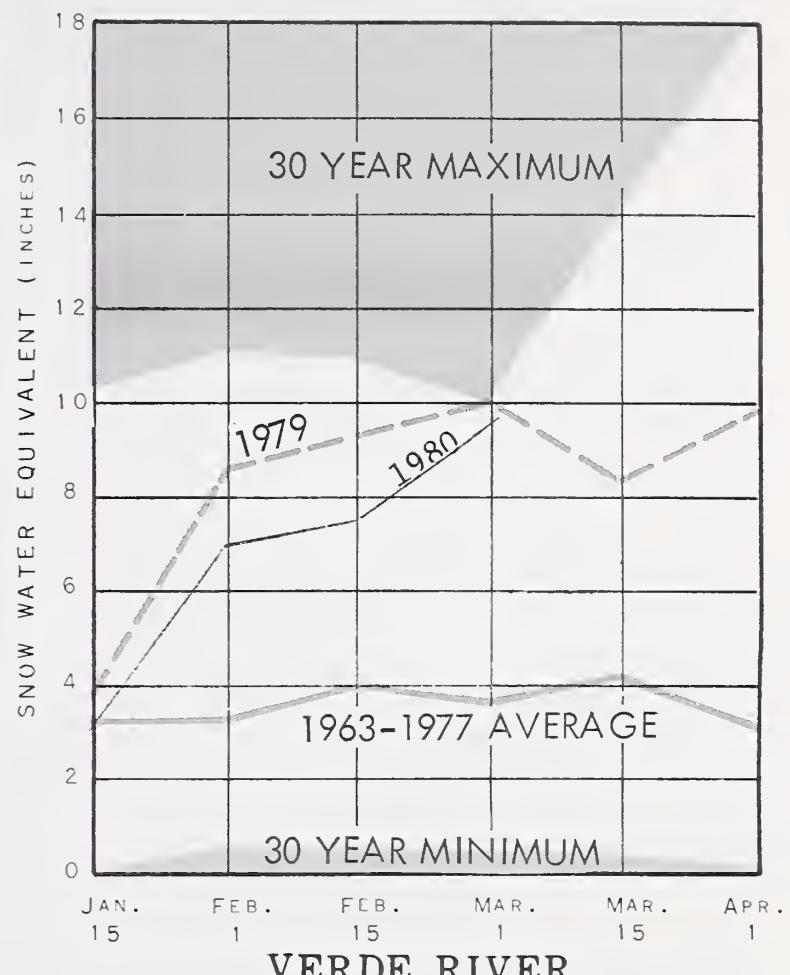
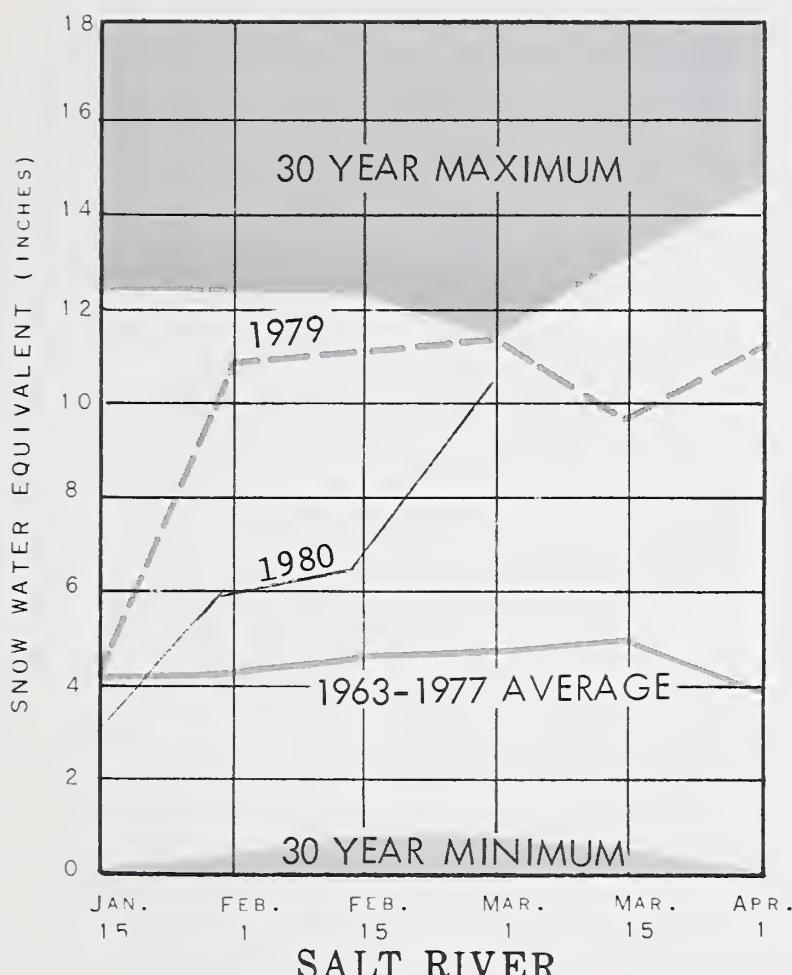
\* Average is for less than 15 years of record.

# AVERAGE SNOW COVER ARIZONA 1980



*This graph represents the average snow water content on eleven selected snow courses on Arizona Sub-Watersheds.*

# 1980 WATERSHED SNOW COVER



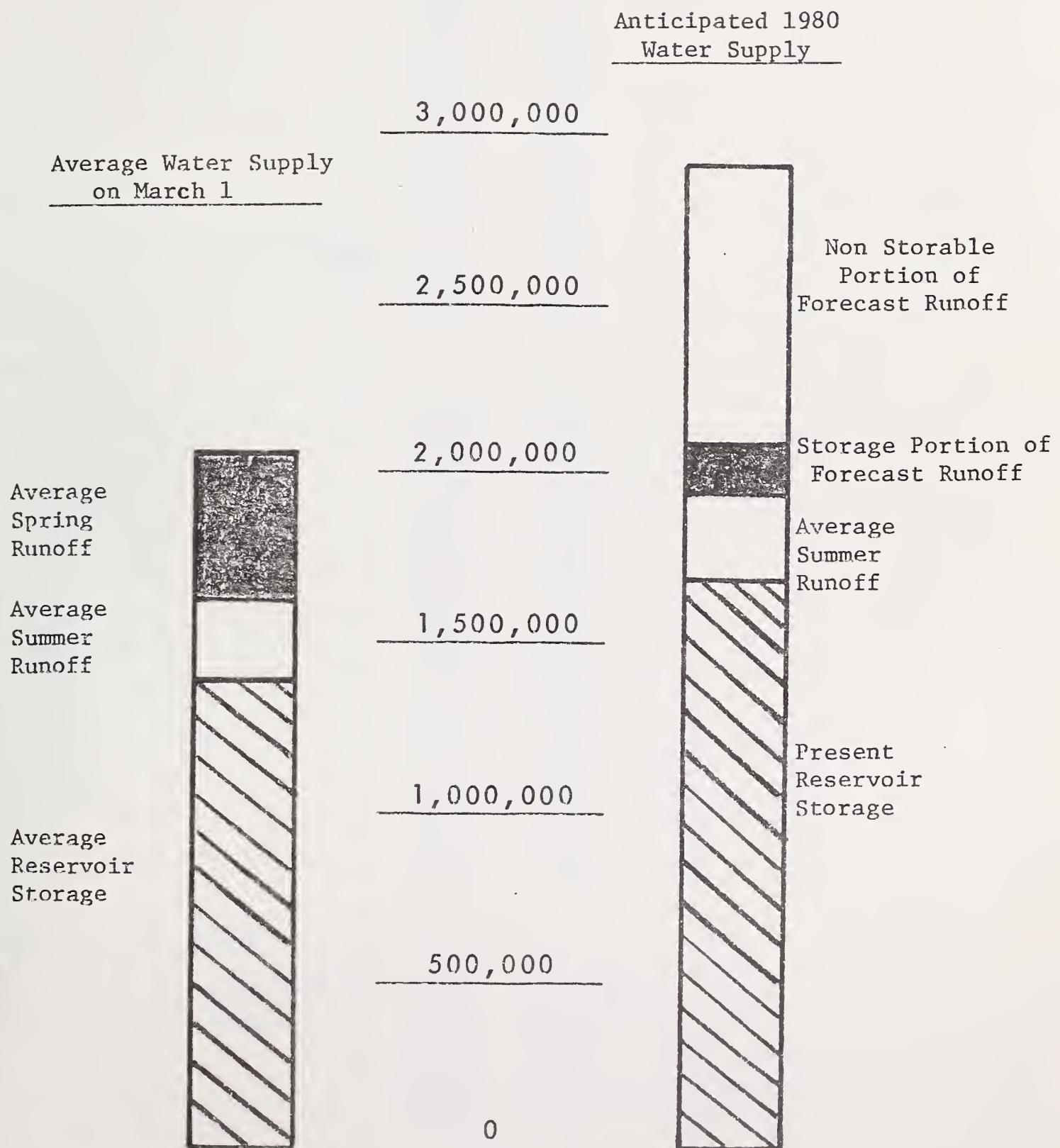
BASED ON SELECTED SNOW SURVEY COURSES

**SUMMARY of SNOW MEASUREMENTS** (COMPARISON WITH PREVIOUS YEARS) **ABOUT MARCH 1, 1980**

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF:	
		Last Year	Average
Gila	10	101	187
Salt	10	90	219
Verde	10	94	261
Little Colorado	5	88	200

# WATER SUPPLY INVENTORY SALT RIVER VALLEY SYSTEM

IN ACRE-FEET



Based on Present Storage + Forecast Spring Runoff + Average Summer Runoff



SNOW MARCH 1, 1980

DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	THIS YEAR		PAST RECORD	
NAME	Elevation		Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
<u>GILA RIVER</u>						
Bear Wallow	8100	2/29	3	1.3	10.8	3.3
Beaver Head	8000	2/28	17	6.2	6.7	2.7
Coronado Trail	8000	2/28	27	9.5	4.8	2.7
Emory Pass #1 *	7800	2/29	0	0.0	0.0	1.0**
Emory Pass #2 *	7800	2/29	0	0.0	2.5	1.5**
Frisco Divide	8000	3/3	12	4.0	4.2	2.3
Hannagan Meadows *	9090	2/28	58	20.4	17.0	8.2**
Hummingbird (A)	10550	2/29	54	15.1	28.2	13.8**
McKnight Cabin * (A)	9300	2/29	12	3.4	9.9	3.8**
Mogollon	7000	2/29	0	0.0E	1.5E	0.7
Nutrioso	8500	2/28	13	4.6	5.0	1.9
Redstone Trail	8600	2/29	--	8.0E	9.6E	6.6
Rose Canyon	7300	2/29	0	0.0	7.6	1.8
Silver Creek Divide (SNOTEL)	9000	2/29	--	14.5E	14.1E	10.0**
State Line	8000	3/3	18	5.5	5.5	2.2
Whitewater (A)	10750	2/29	90	25.2	34.5	17.0**
<u>VERDE RIVER</u>						
Baker Butte	7300	2/27	31	12.6	13.8	6.0**
Baker Butte #2	7700	2/27	63	24.4	21.6	11.4**
Camp Wood	5700	No Survey			1.0	0.2
Chalender *	7100	2/29	20	7.4	6.4	2.4
Copper Basin Divide	6720	2/28	T	0.1	6.2	1.2
Fort Valley	7350	2/28	20	7.3	6.5	1.6
Gaddes Canyon	7600	2/28	31	12.7	10.1	4.8
Happy Jack	7630	2/29	28	10.3	10.5	3.3
Iron Springs *	6200	2/28	0	0.0	1.4	0.2
Mingus Mountain	7100	2/28	0	0.0	2.6	0.7
Mormon Lake *	7350	2/28	25	10.4	10.0	4.0
Mormon Mountain	7500	2/28	38	16.2	13.8	5.0
Newman Park	6750	2/28	15	5.1	8.2	1.7
Snow Bowl #1	10260	2/29	72	22.4	20.7	8.9
Snow Bowl #2	11000	2/29	107	32.9	32.2	13.9**
White Horse Lake Jct.	7150	2/29	24	8.9	6.1	2.8**
White Spar	6000	2/28	0	0.0	0.5	0.2
<u>LOWER COLORADO RIVER</u>						
Bill Williams Intermediate	8550	No Survey			---	7.4**
Bill Williams Summit	8950	No Survey			---	10.1**
Chalender *	7100	2/29	20	7.4	6.4	2.4
Fort Valley	7350	2/28	20	7.3	6.5	1.6
Grand Canyon	7500	No Survey			7.7	1.4
Williams Ski Run	7720	2/29	50	18.7	13.4	6.6**
+ 1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated. E = estimated.						

**SNOW ABOUT MARCH 1, 1980**

DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	THIS YEAR		PAST RECORD	
NAME	Elevation		Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year
<u>SALT RIVER</u>						
Baldy *	9125	2/28	40	13.4	14.7	6.5
Beaver Head	8000	2/28	17	6.2	7.7	2.3
Canyon Creek	7500	2/27	26	10.6	10.1	3.3
Canyon Point	7600	2/27	31	12.0	10.9	3.8**
Coronado Trail	8000	2/28	27	9.5	4.8	2.7
Forest Dale	6430	2/28	0	0.0	0.6	0.6
Ft. Apache	9160	2/28	39	12.2	15.1	7.1
Hannagan Meadows	9090	2/28	58	20.4	17.0	8.2**
Hawley Lake	8300	2/28	50	20.6	14.6	6.2**
Heber	7600	2/27	28	11.5	10.8	3.6
Maverick Fork	9050	2/28	53	18.3	20.9	8.1
McNary	7200	2/28	12	5.2	8.0	1.9
Milk Ranch	7000	2/28	0	0.0	5.5	0.7
Mt. Ord (A)	11000	No Survey			---	---
Nutrioso *	8500	2/28	13	4.6	5.0	1.9
Promontory Butte	7930	2/28	75	31.6	23.3	11.5**
Smith Cienega (A)	9850	No Survey			---	---
Sunrise Summit	10600	2/27	81	25.2	29.2	12.2**
Wilson Lake	9000	2/27	55	17.5	17.3	9.4**
Workman Creek	6900	2/26	17	6.4	10.8	5.4
<u>LITTLE COLORADO RIVER</u>						
Baldy	9125	2/28	40	13.4	14.7	6.5
Canyon Creek	7500	2/27	26	10.6	10.1	3.3
Canyon Point	7600	2/27	31	12.0	10.9	3.8**
Cheese Springs	8600	2/27	30	9.0	9.7	6.5**
Forest Dale	6430	2/28	0	0.0	0.6	0.6
Ft. Apache	9160	2/28	39	12.2	15.1	7.1
Fort Valley	7350	2/28	20	7.3	6.5	1.6
Happy Jack *	7630	2/29	28	10.3	10.5	3.3
Heber	7600	2/27	28	11.5	10.8	3.6
Lake Mary	6970	2/28	6	2.7	7.8	---
McNary	7200	2/28	12	5.2	8.0	1.9
Mormon Lake	7350	2/28	25	10.4	10.0	4.0
Mormon Mountain	7500	2/28	38	16.2	13.8	5.0
Nutrioso *	8500	2/28	13	4.6	5.0	1.9
Promontory Butte	7930	2/28	75	31.6	23.3	11.5**
Snow Bowl #1	10260	2/29	72	22.4	20.7	8.9
Snow Bowl #2	11000	2/29	107	32.9	32.2	13.9**
Wilson Lake	9000	2/27	55	17.5	17.3	9.4**

+ 1963-77 15-year period. (\*) Adjacent drainage. (\*\*) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated.

## SNOW ABOUT FEBRUARY 15, 1980

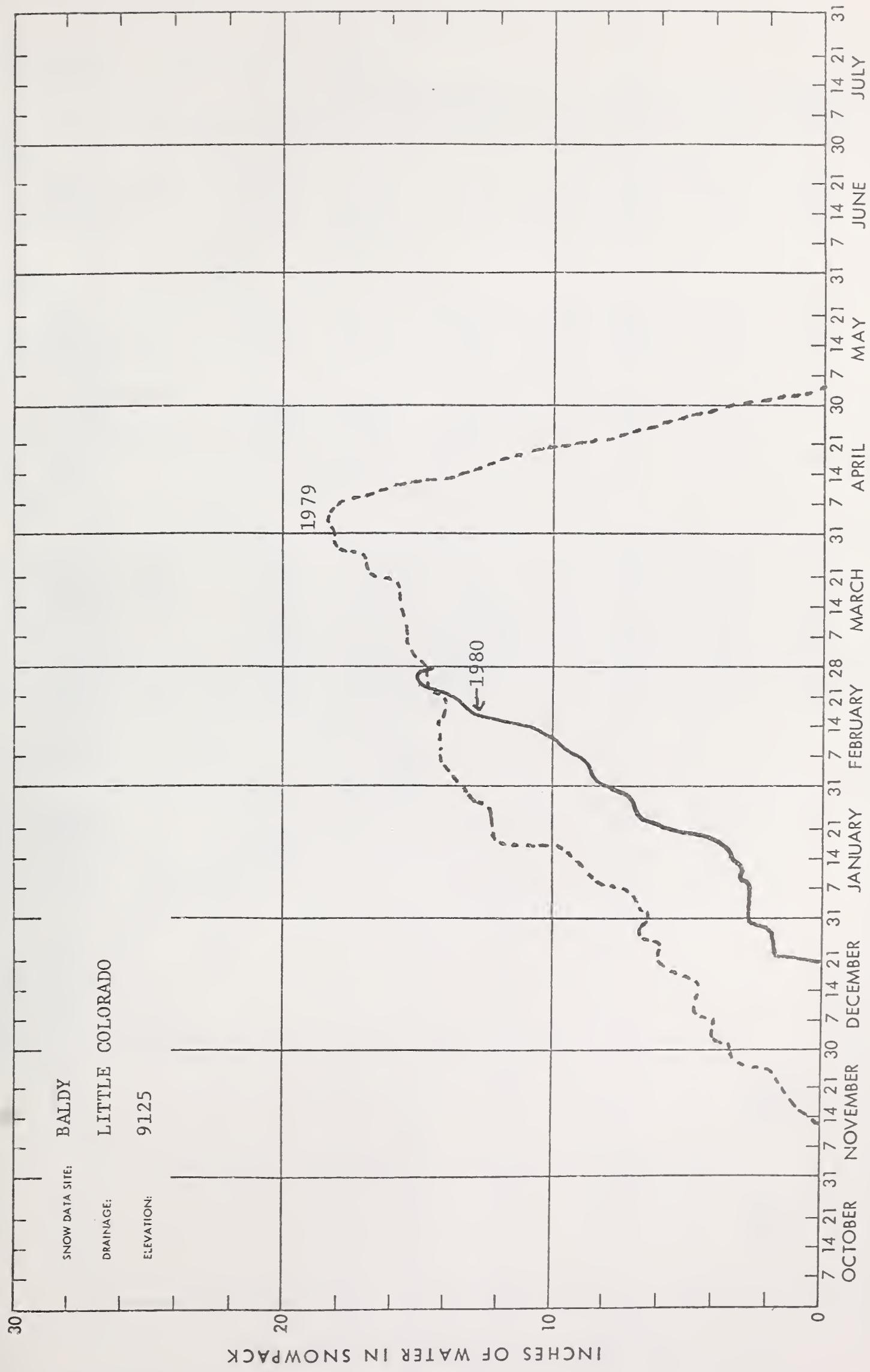
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		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year
<u>GILA RIVER</u>						
Bear Wallow	8100	2/14	10	4.2	11.5	3.8
Beaver Head	8000	2/14	21	4.7	6.7	2.7
Coronado Trail	8000	2/14	26	5.9	4.9	2.5
Emory Pass #1 *	7800	2/14	3	0.9	1.7	0.8**
Emory Pass #2 *	7800	2/14	3	1.0	4.1	2.0**
Frisco Divide	8000	2/13	12	3.6	4.0	2.3
Hannagan Meadows *	9090	2/14	47	11.7	16.0	7.9**
Hummingbird (A)	10550	No Survey			---	12.6**
McKnight Cabin * (A)	9300	No Survey			---	3.4**
Mogollon	7000	2/14	-	0.0E	2.0E	1.2
Nutrioso	8500	2/14	12	2.6	4.9	1.9
Redstone Trail	8600	2/14	-	7.5E	9.5E	6.3
Rose Canyon	7300	2/14	4	1.9	7.9	2.5
Silver Creek Divide (SNOTEL)	9000	2/14	-	13.6E	13.6E	9.4**
State Line	8000	2/13	15	4.1	5.4	2.4
Whitewater (A)	10750	No Survey			---	15.1**
<u>VERDE RIVER</u>						
Baker Butte	7300	2/14	25	10.4	12.4	6.2**
Baker Butte #2	7700	2/14	50	18.4	18.6	9.9**
Camp Wood	5700	No Survey			2.1	0.4
Chalender *	7100	2/14	19	5.8	5.1	2.6
Copper Basin Divide	6720	2/14	0	0.0	5.8	2.0
Fort Valley	7350	2/14	-	6.0E	5.4	2.0
Gaddes Canyon	7600	2/13	25	8.1	8.9	4.5
Happy Jack	7630	2/14	25	8.6	10.3	3.8
Iron Springs *	6200	2/14	0	0.0	2.3	0.4
Mingus Mountain	7100	2/13	0	0.0	3.3	1.1
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Snow Bowl #1	10260	2/14	50	13.9	20.0	8.4
Snow Bowl #2	11000	2/14	74	19.1	27.3	13.3**
White Horse Lake Jct.	7150	2/14	23	8.0	5.3	3.0**
White Spar	6000	2/14	0	0.0	1.7	0.6
<u>LOWER COLORADO RIVER</u>						
Bright Angel	8400	2/14	42	13.1	20.5	---
Bill Williams Intermediate	8550	No Survey			17.2	7.0**
Bill Williams Summit	8950	No Survey			19.0	9.0**
Chalender *	7100	2/14	19	5.8	5.1	2.6
Fort Valley	7350	2/14	-	6.0E	5.4	2.0
Grand Canyon	7500	2/16	8	2.5	7.0	1.5
Williams Ski Run	7720	2/14	44	13.7	12.6	6.1**
+ 1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted E-estimate Average. (A) Aerial observation: water content estimated.						

1963-1977 period.

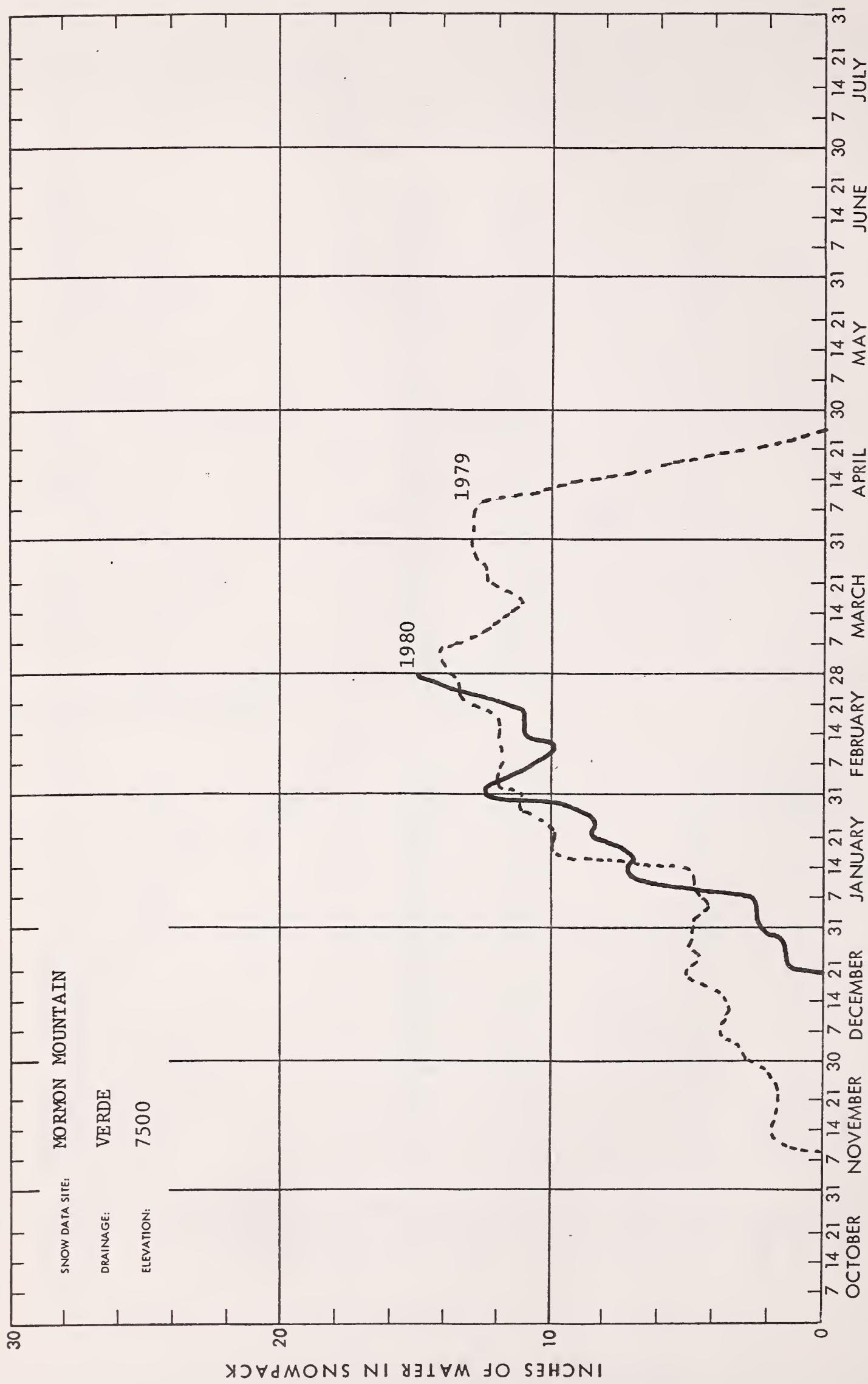
## SNOW ABOUT FEBRUARY 15, 1980

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year
NAME	Elevation					Average +
<u>SALT RIVER</u>						
Baldy *	9125	2/14	33	7.6	13.8	5.9
Beaver Head	8000	2/14	21	4.7	6.7	2.7
Canyon Creek	7500	2/14	20	7.2	9.6	3.5
Canyon Point	7600	2/14	22	8.3	10.3	4.0**
Coronado Trail	8000	2/14	26	5.9	4.9	2.5
Forest Dale	6430	2/14	0	0.0	2.5	1.1
Ft. Apache	9160	2/14	32	7.2	13.1	6.4
Hannagan Meadows	9090	2/14	47	11.7	16.0	7.9**
Hawley Lake	8300	2/14	43	13.2	12.5	6.0**
Heber	7600	2/14	21	7.2	10.2	3.7
Maverick Fork	9050	2/14	-	20.5E	19.6	7.4
McNary	7200	2/14	16	5.3	8.2	2.4
Milk Ranch	7000	2/14	1	0.4	5.5	1.5
Mt. Ord (A)	11000	2/16	120	30.0	---	---
Nutrioso *	8500	2/14	12	2.6	4.9	1.9
Promontory Butte	7930	2/14	-	19.5E	22.0	10.0**
Smith Cienega (A)	9850	2/16	83	23.2	---	---
Sunrise Summit	10600	2/13	48	13.3	28.1	11.4**
Wilson Lake	9000	2/13	37	9.9	15.1	8.3**
Workman Creek	6900	2/12	15	4.9	10.7	5.5
<u>LITTLE COLORADO RIVER</u>						
Baldy	9125	2/14	33	7.6	13.8	5.9
Canyon Creek	7500	2/14	20	7.2	9.6	3.5
Canyon Point	7600	2/14	22	8.3	10.3	4.0**
Cheese Springs	8600	2/13	22	5.9	8.2	5.6**
Forest Dale	6430	2/14	0	0.0	2.5	1.1
Ft. Apache	9160	2/14	32	7.2	13.1	6.4
Fort Valley	7350	2/14	-	6.0E	5.4	2.0
Happy Jack *	7630	2/14	25	8.6	10.3	3.8
Heber	7600	2/14	21	7.2	10.2	3.7
Lake Mary	6970	2/15	7	5.1	6.9	---
McNary	7200	2/14	16	5.3	8.2	2.4
Mormon Lake	7350	2/14	21	7.6	9.0	4.1
Mormon Mountain	7500	2/15	38	14.8	12.1	4.8
Nutrioso *	8500	2/14	12	2.6	4.9	1.9
Promontory Butte	7930	2/14	-	19.5E	22.0	10.0**
Snow Bowl #1	10260	2/14	50	13.9	20.0	8.4
Snow Bowl #2	11000	2/14	74	19.1	27.3	13.3**
Wilson Lake	9000	2/13	37	9.9	15.1	8.3**

+ 1963-77 15-year period. (\*) Adjacent drainage. (\*\*) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated. E-estimate



WSF8-X138



## PRECIPITATION (Inches) ABOUT MARCH 1, 1980

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION			FROM APPROX. NOV. 1 TO DATE		
		Date of Reading	Month's Precipitation	Average +	This Year	Average +	Percent of Average
<u>GILA RIVER</u>							
Silver Creek Divide	9000	2/29	6.30	2.25*	14.80	10.51*	141
Hannagan Meadows **	9030	2/28	7.30	2.24	19.23	9.60	200
Frisco Divide **	8000	2/29	4.05	1.21	11.26	4.53	248
<u>SALT RIVER</u>							
Canyon Point	7600	2/27	12.73	2.50*	28.91	12.63	229
Hannagan Meadows **	9030	2/28	7.30	2.24	19.23	9.60	200
Little Wildcat (Heber Snow Course)	7600	2/27	11.95	2.17	25.93	11.18	232
Maverick Fork	9050	2/28	8.35	2.16	18.74	9.88	190
Workman Creek **	6970	2/26	14.80	3.01	-	13.19	-
Wilson Lake	9100	2/27	6.90	1.96*	16.87	8.96*	188
<u>VERDE RIVER</u>							
Baker Butte	7300	2/27	12.43	2.84*	28.15	12.36*	228
Copper Basin Divide	6720	2/28	5.11	2.09	17.68	8.89	199
Fort Valley **	7350	2/29	5.50E	1.44	14.04E	6.66	211
Happy Jack **	7480	2/28	10.17	2.24	20.84	9.36	223
Mingus Mountain	7660	2/28	7.75	2.13	17.71	7.25	244
Mormon Mountain	7500	2/28	13.23	2.76	29.96	13.20	227
White Horse Lake Jct.**	7150	2/29	10.00	3.91	25.28	11.21	228
<u>LITTLE COLORADO</u>							
Greer Lakes	8500			1.06		4.99	
Little Wildcat (Heber Snow Course)	7600	2/27	11.95	2.17	25.93	11.18	232
Sheep Crossing (Baldy Snow Course)	9125	2/28	6.30	1.94	15.63	8.87	176

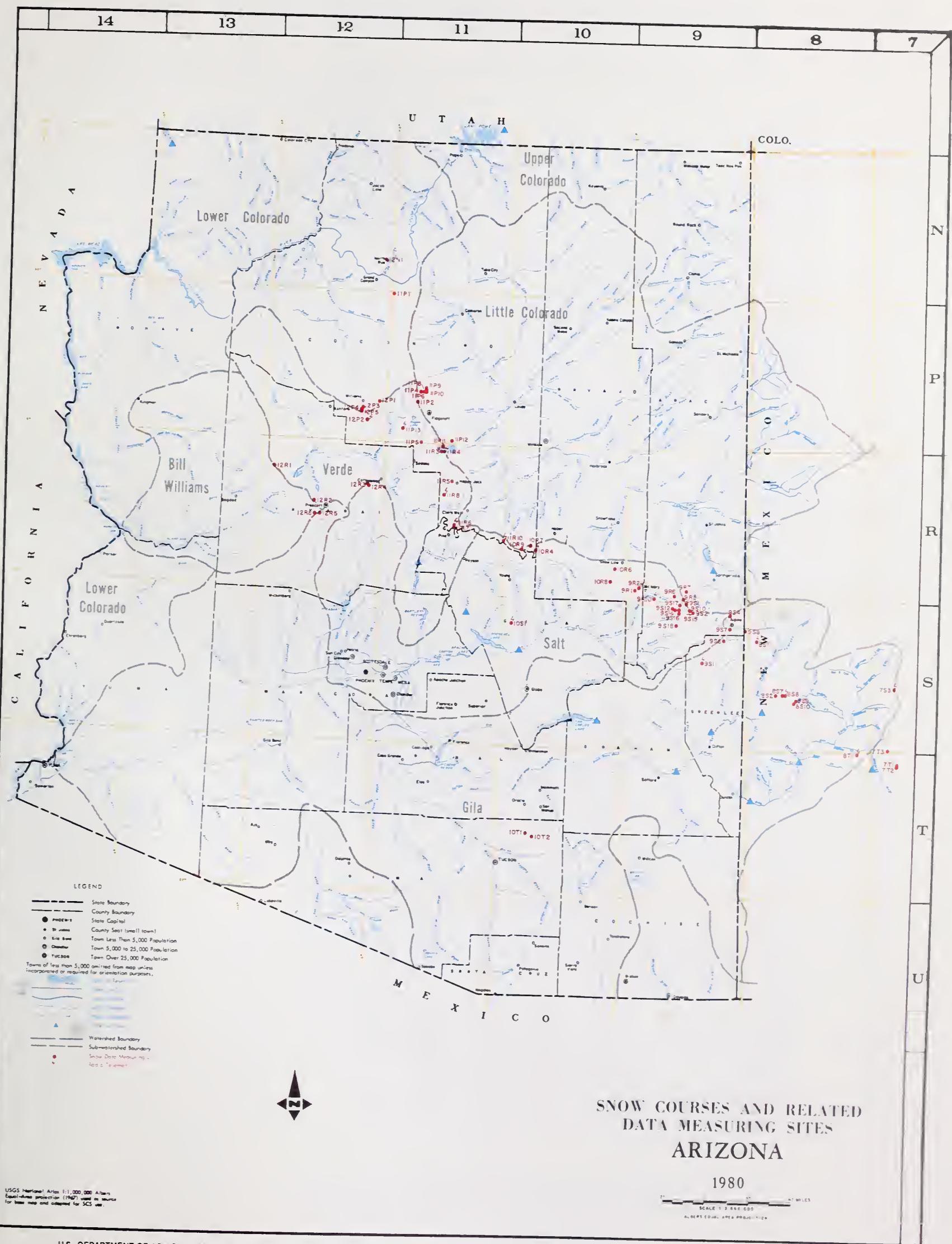
+ 1963-77 Average

\* Adjusted Average

\*\* Data Supplied by  
U.S. Forest Service

E estimate





**SNOW COURSES AND RELATED  
DATA MEASURING SITES  
ARIZONA**

1980

USGS National Atlas 1:1,000,000 Albers  
Equal-Area projection (PAE) used as source  
for base map and adapted for SCS use.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

# INDEX to SNOW COURSES and SOIL MOISTURE STATIONS

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.	DRAINAGE	OBSERVER	RECORD BEGAN
11P10A	Agassiz	32	23N	7E	11200	Little Colorado	SCS-CF*	1968
11R7	Baker Butte #2	9	12N	9E	7700	Verde	SCS	1971
11R6PSPRT	Baker Butte	4	12N	9E	7300	Verde	SCS	1966
9S1APSPRT	Baldy	28	7N	27E	9125	Little Colorado	SCS	1950
9S15	Baldy #2	12	6N	26E	9750	Little Colorado	SCS	1963
9S16	Baldy #3	13	6N	26E	10950	Little Colorado	SCS	1963
10T1	Bear Wallow	6	12S	16E	8100	Gila	FS	1948
9S6	Beaver Head	13	4N	30E	8000	San Francisco	FS	1938
12P5	Bill William Intermediate	17	21N	2E	8550	Cataract	FS	1967
12P4	Bill Williams Summit	17	21N	2E	8950	Verde	FS	1967
9S10m	Black River Divide	10	6N	27E	9400	Salt	SCS	1954
9S18PSPRT	Bonito Rock		5N	26E	8270	Salt	SCS	1979
12N1	Bright Angel	34	33N	3E	8400	Bright Angel Creek	NPS	1947
12R1	Camp Wood	3	16N	6W	5700	Verde	FS	1946
10R7M	Canyon Creek #2	18	11N	15E	7500	Little Colorado	SCS	1958
10R9P	Canyon Point	28	11N	14E	7600	Salt	SCS	1967
12P1M	Chalender	27	22N	3E	7100	Verde	FS	1947
9R7	Cheese Springs	28	8N	27E	8600	Little Colorado	SCS	1969
12R6P	Copper Basin Divide	23	13N	3W	6720	Verde	SCS	1963
10R8m	Corduroy Creek	4	8N	21E	6000	Salt	SCS	1954
9S7PSPRT	Coronado Trail	26	5N	30E	8000	San Francisco	FS	1938
7T1	Emory Pass #1	16	16S	9W**	7800	Mimbres	SCS	1967
7T2	Emory Pass #2	16	16S	9W**	7800	Mimbres	SCS	1967
11P13PSPRT	Fry	35	20N	5E	7220	Verde	SCS	1978
10R6	Forest Dale	2	9N	21E	6430	Salt	BIA	1939
9R5	Ft. Apache	18	7N	27E	9160	Little Colorado	SCS	1951
11P2P	Ft. Valley	22	22N	6E	7350	Little Colorado	FS	1947
8S1MPSPRT	Frisco Divide	31	6S	20W**	8000	San Francisco	FS	1938
12R4	Gaddes Canyon	11	15N	2E	7600	Verde	SCS	1954
11P1	Grand Canyon	21	30N	4E	7500	Hance Creek	NPS	1947
9S11PSPRT	Hannagan Meadows	19	3N	29E	9090	San Francisco	FS	1964
11R5P	Happy Jack	30	16N	9E	7630	Verde	FS	1951
9R10PSPRT	Hawley Lake	13	7N	24E	8300	Salt	BIA	1966
10R4PSPRT	Heber	28	11N	15E	7600	Little Colorado	SCS	1950
8S9A	Hummingbird	19	11S	17W**	10550	Gila	SCS	1964
11P9P	Inner Basin #1	28	23N	7E	10000	Little Colorado	SCS-CF*	1967
11P8P	Inner Basin #2	28	23N	7E	9750	Little Colorado	SCS	1967
12R2	Iron Springs	22	14N	3W	6200	Little Colorado	SCS	1946
11P12	Lake Mary	21	19N	9E	6930	Little Colorado	SCS	1975
7S3PSPRT	Lookout Mountain	1	10S	10W	8500	Gila	SCS	1978
9S2APSPRT	Maverick Fork	13	6N	27E	9150	Salt	SCS	1950
7S3A	McKnight Cabin	10	15S	10W**	9300	Mimbres	SCS	1967
9R2MPSPRT	McNary	23	8N	23E	7200	Salt	BIA	1939
9R1	Milk Ranch	33	8N	23E	7000	Salt	BIA	1941
12R3	Mingus Mountain	3	15N	2E	7100	Verde	SCS	1947
8S2	Mogollon	2	11S	19W**	7000	San Francisco	SCS	1953
11R4	Mormon Lake	13	18N	8E	7350	Little Colorado	SCS	1947
11R3MAPSPRT	Mormon Mountain	14	18N	8E	7500	Verde	SCS	1950
11R11	Mormon Mountain Summit	2	18N	8E	8470	Little Colorado	SCS	1975
9S12A	Mt. Ord	4	6N	26E	11200	Salt	SRP-SCS	1966
11P5M	Newman Park	25	19N	6E	6750	Verde	SCS	1963
9S4	Nutrioso	23	6N	30E	8500	San Francisco	FS	1938
11R10PSPRT	Promontory Butte	5	11N	13E	7930	Little Colorado	SCS	1973
8S7	Redstone Trail	5	11S	18W**	8600	San Francisco	SCS	1961
10T2	Rose Canyon	15	12S	16E	7300	Gila	FS	1948
8T1PSPRT	Signal Peak	13	16S	13W	8360	Gila	SCS	1977
8S8PSPRT	Silver Creek Divide	4	11S	18W**	9000	San Francisco	SCS	1964
9S14A	Smith Cienega	10	6N	26E	10050	Salt	SRP-SCS	1966
11P4	Snow Bowl #1	36	23N	6E	10260	Verde	FS	1961
11P6	Snow Bowl #2	31	23N	7E	11000	Verde	FS	1965
9S8	State Line	6	6S	21W**	8000	San Francisco	FS	1938
9S17	Sunrise Summit	36	7N	26E	10600	Salt	SCS	1972
11R8PSPRT	Sugarloaf	8	8E	14N	6120	Verde	SCS	1978
12P2PSPRT	White Horse Lake Jct.	2	20N	2E	7180	Verde	FS	1967
12R5	White Spar	19	13N	2W	6000	Verde	SCS	1963
8S10A	Whitewater	19	11S	17W**	10750	Gila	SCS	1964
12P3	Williams Ski Run	9	21N	2E	7720	Cataract	FS	1967
9R6P	Wilson Lake	4	7N	26E	9000	Salt	SCS	1966
10S1PSPRT	Workman Creek	33	6N	14E	6900	Salt	FS	1952

A Aerial Snow Depth Marker  
 M Soil Moisture Station  
 M Soil Moisture Station Only  
 P Precipitation Storage Gage  
 R Radio Telemetry (SNOTEL)

SP Snow Pressure Pillow  
 T Temperature  
 \*\* NM Principal Meridian  
 \* City of Flagstaff

## The Following Organizations Cooperate in the Arizona Snow Survey Work

### FEDERAL

Department of Agriculture  
Soil Conservation Service  
Forest Service  
    Apache-Sitgreaves Forest  
    Coconino Forest  
    Coronado Forest  
    Gila Forest  
    Kaibab Forest  
    Prescott Forest  
    Rocky Mountain Forest and Range Experiment Station  
    Tonto Forest  
Department of Commerce  
    NOAA, National Weather Service  
Department of Interior  
    Bureau of Reclamation  
        Region 111  
    Geological Survey  
        Arizona District  
        New Mexico District  
    Bureau of Indian Affairs  
        Fort Apache Reservation  
        San Carlos Irrigation Project  
    National Park Service  
        Grand Canyon National Park  
    Gila Water Commissioner  
        Safford, Arizona

### STATE

Arizona Game and Fish Department  
Arizona State Parks Board  
Arizona Water Commission  
University of Arizona  
    Arizona Agricultural Experiment Station  
    Water Resource Research Center  
    Department of Watershed Management

### MUNICIPAL

City of Flagstaff

### IRRIGATION PROJECTS

Salt River Valley Water User's Association  
    Phoenix, Arizona  
San Carlos Irrigation and Drainage District  
    Coolidge, Arizona  
Maricopa County Municipal Water Conservation District

### PRIVATE

Southwest Forest Industries, Inc.  
    McNary, Arizona  
Fort Apache Indian Reservation  
    White Mountain Recreation Enterprises

Other organizations and individuals furnish valuable information for  
the snow survey reports. Their cooperation is gratefully acknowledged.

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SOIL CONSERVATION SERVICE  
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FEDERAL - STATE - PRIVATE  
COOPERATIVE SNOW SURVEYS

Furnishes the basic data  
necessary for forecasting  
water supply for irrigation,  
domestic and municipal water  
supply, hydro-electric power  
generation, navigation,  
mining and industry

—  
“The Conservation of Water begins  
with the Snow Survey”